21773 & 21769; NMP 19735); 5–8 November 2003 (NMP 19737, 19843 & 19783; UAM 21771 & 21775). This taxon, formerly regarded as a subspecies of *C. saularis*, is now recognised as an endemic species (Sheldon *et al.* 2009). Some of these specimens were used in that taxonomic reassessment.

NECTARINIIDAE

Olive-backed Sunbird *Cinnyris jugularis jugularis*: Olango Island, Olango Island Wildlife Sanctuary: 15–18 October 2003 (NMP 19772, 19786, 19860 & 19748; UAM 21778, 21779, 21789, 21785, 21787 & 21790).

MOTACILLIDAE

Pechora Pipit *Anthus gustavi gustavi*: Mactan Island, Cordova: 27 November 2001 (UAM 14360). ***Anthus gustavi***: Busuanga Island, Bintuan: 27 April 2008 (UAM 25225).

The specific localities of the sites above were: Bohol Island, Rajah Sikatuna National Park (9.700°N 124.117°E), Busuanga Island, Bintuan (12.032°N 120.122°E), Luzon Island, Mountain Province, Mt. Kalawitan, Apa (16.947°N 120.931°E), Mactan Island, Cordova (10.250°N 123.950°E) and Olango Island, Olango Island Wildlife Sanctuary (10.264°N 124.049°E).

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Some interesting breeding records for Pong Dam Wildlife Sanctuary, Himachal Pradesh, India

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Introduction

Pong Dam Wildlife Sanctuary located in Himachal Pradesh, India, is an important staging site for migratory species, such as waterfowl and shorebirds (Pandey 1993, den Besten 2004). The area is situated on the border of two important biogeographic zones, namely the Western Himalaya, an endemic bird area (BirdLife International 2003), and the Indo-Gangetic Plain. The creation of the reservoir in 1975 caused marked changes in river flow and land use patterns, thereby dramatically altering the diversity of wintering birds (Whistler 1926, Pandey 1993). The resulting change is indicated by the 555 avian species recorded for the district (den Besten 2004) as compared to 395 species recorded in the early 1920s for the Punjab plains (Whistler 1926). The large congregations of wintering avifauna warranted the sanctuary to be recognised as a Ramsar site in 2002 (www.wetlandsofindia.org) and an Important Bird Area (Islam & Rahmani 2004). Apart from the large congregations of waterfowl, the area also has significant congregations of White-rumped Vulture *Gyps bengalensis*, with over 160 individuals as late as 2003 (JWdB pers. obs.) and nests in the adjoining forest (Dhadwal 2010). Sightings of Sarus Crane *Grus antigone* along with juveniles (den Besten 2004) suggest possible breeding in the areas. Here we report waterbird species and emphasise the tern species that utilise the area as a breeding ground, thus enhancing the importance of the area.

Study area and methods

This wetland (32.004°N 76.039°E) lies at the base of the Dhauladhar range in the Shiwalik hills where these open up to form a wide valley. The reservoir was created in 1975 by impounding the River Beas for the generation of electricity and flood control of downstream areas in the Punjab. Several perennial and seasonal tributaries that drain from the Dhauladhar range such as the Dehar, Bhul, Gaj and Baner also feed the reservoir. When the reservoir is filled to maximum level (423.67 m) the water body covers an area of 225 km^2 and at its minimum level (385.57 m) the coverage is 125 km^2. This wetland has two parts: the main reservoir along with the islands of Ranseer and Karu, and the outflow area, Sansarpur terrace with the Sahnehar barrage at Sathana. The surrounding hills are covered in mixed deciduous forest with *Pinus roxburghii*, *Anogeissus latifolia*, *Terminalia* sp., *Acacia catechu*, *Mallotus philippensis*, etc., but the reservoir area is devoid of woody vegetation. Along the shores of the reservoir, vegetation is limited with few aquatic macrophytes except algae, because of marked seasonal changes in the water levels. As water recedes most of the exposed areas show the presence of grasses, such as *Cyanodon dactylon*, while local farmers cultivate wheat *Triticum* spp. The Sansarpur terrace area (approx 3 km^2) has a shallow waterbody with an extensive swamp with reedbeds of *Typha* sp. and *Phragmities* sp. The fringe area has wooded vegetation comprising

A. catechu and plantations of *Leucaena leucocephala* while adjacent to the boundary are fields with seasonal crops bordered by a mix of fruit-bearing trees and *Eucalyptus* spp.

The area was visited during the period 15 April to 15 May 2006. Reconnaissance surveys within the main reservoir helped to delineate sites on the basis of the aggregation and feeding behaviour of the tern species. Nagrota Surian and Ranseer island in the main reservoir and Sansarpur terrace were selected for surveys to be carried out to locate nests. Species and clutch sizes were noted down and care was taken when nest(s) were located by tagging each site so as to prevent double counts.

Results and discussion

Nesting activity was recorded in all three main areas. The number of nests reported for River Tern *Sterna aurantia*, Little Tern *Sterna albifrons* and Small Pratincole *Glareola lactea* may be one of the largest nesting records for northern India, while nesting of Gull-billed Tern *Gelochelidon nilotica* and Indian Skimmer *Rynchops albicollis* are of significance. The nest characteristics recorded in the sanctuary are similar to those described from other nest sites in India (Waite 1917, Baker 1935, Ali & Ripley 1983).

River Tern *Sterna aurantia*

In total 383 nests were recorded. Nearly 23% of the nest had a clutch size of four or more, which is rarely recorded from other nesting colonies in India (Ali & Ripley 1983, Balachandran *et al.* 2005).

Little Tern *Sterna albifrons*

A total of 95 nests were recorded. This is the first inland breeding record for the species in the Indian Subcontinent. The only nesting records reported for this species in India are from the coastlines of India (Holloway 1993, Sashikumar *et al.* 2004, Balachandran *et al.* 2005).

Gull-billed Tern *Gelochelidon nilotica*

In total 17 nests were recorded making this the only recent inland nesting site for the species. The only other inland nesting site reported for this species was at the confluence of the River Beas and River Sutlej (Waite 1917). All other nesting records for this species are from the coastlines of India (Balachandran *et al.* 2005).

Indian Skimmer *Rynchops albicollis*

Although the number of recorded nests (4) is small, this is the only nesting report for the species in north-west India apart from National Chambal Wildlife Sanctuary (Sundar 2004), which is about 600 km south-east in Uttar Pradesh.

Small Pratincole *Glareola lactea*

Eighty-seven nests were recorded for this species. The other reported breeding sites in northern India are National Chambal Wildlife Sanctuary (Sundar 2004) and West Yamuna Canal, Haryana (http://www.delhibird.com/Checklists/West%20Yamuna%20Canal.html).

At Nagrota Surian and Ranseer island breeding was recorded for Indian Skimmer, Small Pratincole, River Tern, Gull-billed Tern and Little Tern, and nests of Red-wattled Lapwing *Vanellus indicus* and Great Thick-knee *Esacus recurvirostris* were recorded within the breeding colonies as well. Additionally, Yellow-wattled Lapwing *V. malabaricus*, Little Ringed Plover *Charadrius dubius* and Kentish Plover *C. alexandrinus* were recorded at Nagrota Surian and nests of Little Cormorant *Phalacrocorax niger* (200), Cattle Egret *Bubulcus ibis* (150), Little Egret *Egretta garzetta* (150), Indian Pond Heron *Ardeola grayii* (50) and Black-crowned Night Heron *Nycticorax nycticorax* (6) were recorded at Ranseer island. At Sansarpur terrace nests (4) and two broods of ducklings of Indian Spot-billed Duck *Anas poecilorhyncha* and three breeding Purple Swamphen *Porphyrio porphyrio* were recorded. Sightings of the following species suggest breeding that could not be confirmed because the reedbeds and marshes were not surveyed for nests: Grey Heron *Ardea cinerea*, Purple Heron *A. purpurea*, Yellow Bittern *Ixobrychus sinensis*, Cinnamon Bittern *I. cinnamomeus*, Black Bittern *Dupetor flavicollis*, Brown Crake *Amaurornis akool*, White-breasted Waterhen *A. phoenicurus*, Ruddy-breasted Crake *Porzana fusca*, Common Moorhen *Gallinula chloropus*, Greater Painted-snipe *Rostratula benghalensis*, Eurasian Thick-knee *Burhinus oedicnemus*, Black-winged Stilt *Himantopus himantopus*, Pheasant-tailed Jacana *Hydrophasianus chirurgus*, River Lapwing *Vanellus duvaucelii*, Black-bellied Tern *Sterna acuticauda*, Indian Pond Heron, Woolly-necked Stork *Ciconia episcopus*. Due to logistic constraints our surveys were limited to particular sites (three) within the area where the breeding colonies were located. Given the vastness of the area, systematic surveys covering larger areas including other habitats such as agricultural land, reedbeds, woodland, etc., were not done. The current survey is therefore in no way an indication of the numbers of pairs and species that in reality use the area for breeding.

The monsoon run-off and snow melt from the Himalayas feed the River Beas, and because both these fluctuate greatly from year to year, the water level and size of the wetland vary markedly from year to year. As a result, the exact locations of the colonies change from year to year, because they are always situated on freshly exposed mudflats. It means that a sudden rise in water level as a result of spring rains can wash away some nests. The ever-changing shoreline on the other hand also restricts development and construction along the shoreline and this enhances the suitability of the area for breeding shorebirds. Human disturbance may affect breeding success. Intentional destruction almost never occurs, but other human-induced disturbance includes pesticide usage, tilling of land and preparations for planting crops in the drawdown area, and the large numbers of grazing cattle; all these may have an impact on the nesting birds.

In the past two decades most river systems in northern India have been managed for multiple uses to meet the increasing demand for irrigation and power. Apart from industrial discharge and the development of towns, the utilisation of resources from the riverbanks is known to create conditions that are detrimental for shorebirds and other wetland species. Although there are many reservoirs in northern India that are listed as Important Bird Areas (Islam & Rahmani 2004), none has been reported to have such large congregations of breeding terns. We do not rule out that these tern species that prefer sandpits, sand banks and islets of perennial rivers may still be utilising riverbanks but as development and utilisation of resources along rivers continue unabated, reports of such large congregations in northern India will be scarce.

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Population and diet of migratory Common Starlings *Sturnus vulgaris* wintering in agricultural areas of Sialkot district, Pakistan

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Introduction

The Common Starling *Sturnus vulgaris* is one of the most successful and widespread bird species, having large populations on five different continents. It is native to Europe and Asia, but has also been successfully introduced to three other continents (Feare *et al.* 1992). Migratory populations that breed in Siberia and Turkestan use the Central Asian Flyway to winter in Pakistan and India (Roberts 1992, Champ & Riess 1999). Common Starlings visit Pakistan from late October to early April and occur throughout the country, except in high-altitude, snow-covered areas. The earliest arrival recorded in southern Punjab was on 27 September (Roberts 1992).

Common Starlings forage in flocks during winter (Coleman 1977, Tyler & Kannenberg 1980). They are omnivorous, consuming a wide range of invertebrate and plant material, but in winter, they rely more on plant material and can become a crop pest (Feare 1984). Winter diet varies regionally. In Australia, Higgins *et al.* (2006) described the Common Starling as omnivorous, consuming grain, fruit, seeds, nectar and garbage. In Alabama, USA, it usually digs up seeds in sown fields, sprouting garden vegetables and other flowering plants (Imhof 1962). In temperate Europe, wintering Common Starlings also take large numbers of invertebrates, primarily soil-dwelling crane-fly larvae (Tipulidae) found in grasslands (Feare 1984).

The global conservation status of Common Starling is Least Concern (BirdLife International 2013), but a sharp decline has been reported in its northern and western European populations during the past two decades. Reduced availability of food sources as a result of agricultural intensification is suspected to be one of the major reasons for its decline in Europe (Crick *et al.* 2002). Given its increasing conservation importance, it has become necessary to monitor Common Starling populations and investigate their ecology in wintering areas. No such studies have taken place in Pakistan, where Common Starling is also a protected species, listed under Schedule III of the Wildlife Legislation of Punjab province (Shafiq 2005). In this paper, we describe a study of a wintering population in an agricultural area of Sialkot district.

Methods

The current study was carried out in an agricultural ecosystem in Sialkot district, central Punjab province. The district covers 3,016 km^2 and comprises four tehsils (administrative units). Four 1 km^2 study sites were selected: Sialkot (Site I: 32.425°N 74.588°E; 790 m), Pasrur (Site II: 32.282°N 74.692°E; 757 m), Daska (Site III: 32.295°N 74.502°E; 707 m) and Sambrial (Site IV: 32.496°N 74.376°E; 748 m), representing one site from each tehsil. The study sites were surveyed monthly from 27 September 2010 to the end of May 2011.

The Common Starling population size was estimated using line transects (Burnham *et al.* 1980). Freshly killed Common Starlings were obtained from local hunters and their gizzard contents were analysed following the method of Coleman (1977). Twenty gizzard samples were analysed: five in each month from November 2010 to February 2011. Invertebrate prey items were identified and the number of individual invertebrates consumed was calculated based on remains such as head capsules, abdomens, paired elytra or wings (Hartley 1948).

Results

Common Starlings were first sighted (15–50 birds per flock) at Site III (Tehsil Daska) near canal banks and rice mills on 2 November 2010. Subsequently, starlings occupied feeding sites near irrigation water sources including nullahs, canals and subcanals. In the mornings (two to three hours after sunrise), flock size was typically 15–25 birds, occasionally reaching 50 birds per flock. Smaller flock sizes (8–15) were recorded around noon. In the evenings, large roosting flocks of 200–500 birds were recorded. Common Starlings were recorded in agricultural areas until 27 February 2011, but small numbers remained in urban areas until the first week of April 2011.

Estimated densities of Common Starling populations are summarised by month in Table 1. The highest population density was found at Site III (39 birds/km^2) and the mean density was 26 ± 4 birds/km^2 (Table 1). Densities were significantly higher at Site III: Student's paired *t*-tests showed significant differences in numbers of birds between Sites I and III ($P < 0.01$; $t = -3.84$; df = 3) and between Site II and III ($P < 0.001$; $t = -8.42$; df = 3).

Common Starlings roosted in dense vegetation including bamboo, sugarcane fields and dense *Eucalyptus* trees. Large flocks congregated over the roost sites before entering them, just before sunset. Common Starlings generally started foraging an hour after sunrise and fed continuously until noon. While foraging, they dug up seeds and insects from the soft and wet soil by open-bill probing. About 30 to 45 minutes before sunset, they ceased foraging and flew back to their roosting sites. Starlings foraged on rice crops and also consumed sprouted wheat and lentil grains, spending roughly equal time in these crops. Brassica and *Trifolium* crops were visited less frequently than wheat and lentils. Among the vegetables crops, pea and potato fields were utilised. Starlings followed tractors ploughing fields to catch invertebrates. On rainy days, they foraged on uncultivated and unploughed fields.

Common Starling gizzards contained, on average, 42% invertebrates and 58% seeds and other plant matter by volume. There was a high incidence of adult insects in the gizzards and the groups found most frequently were Coleoptera (excluding weevils)